

Amendments to the Claims

Claim 1 (original): A process for recovering pentafluoroethane (HFC-125) comprising the steps of:

- (a) providing a first mixture comprising pentafluoroethane (HFC-125) and chloropentafluoroethane (CFC-115); and
- (b) distilling said first mixture in the presence of hexafluoropropene (HFP) to separate pentafluoroethane (HFC-125) from a second mixture comprising hexafluoropropene (HFP) and chloropentafluoroethane (CFC-115).

Claim 2 (original): The process according to claim 1 wherein said distilling step comprises extractive distillation.

Claim 3 (original): The process according to claim 1 wherein said hexafluoropropene (HFP) is an extracting agent.

Claim 4 (original): The process according to claim 1 further comprising the steps of:

- (c) recovering said pentafluoroethane (HFC-125) as an overhead product; and
- (d) recovering said second mixture as a bottom product.

Claim 5 (original): The process according to claim 1 further comprising the step of:

(e) purifying said hexafluoropropene (HFP) in said second mixture to produce a third mixture comprising said chloropentafluoroethane (CFC-115).

Claim 6 (original): The process according to claim 5 further comprising the step of:

- (f) recovering said hexafluoropropene (HFP).

Claim 7 (original): The process according to claim 6 further including the step of converting hexafluoropropene (HFP) to at least one hexafluoropropene (HFP) derivative.

Claim 8 (original): The process according to claim 6 further including the step of converting hexafluoropropene (HFP) to at least one fluoropolymer.

Claim 9 (original): The process according to claim 6 further including the step of recycling said hexafluoropropene (HFP) to a process for recovering pentafluoroethane (HFC-125).

Claim 10 (original): The process according to claim 1 further comprising the steps of:

(g) adding hydrogen fluoride (HF) to said second mixture to produce a fourth mixture;

(h) converting said hexafluoropropene (HFP) in said fourth mixture by hydrofluorination in the presence of a suitable catalyst to heptafluoropropane (HFC-227) to produce a fifth mixture;

(i) separating said fifth mixture into said heptafluoropropane (HFC-227) and a sixth mixture comprising said chloropentafluoroethane (CFC-115); and

(j) recovering said heptafluoropropane (HFC-227).

Claim 11 (original): The process according to claim 10 wherein said suitable catalyst contains activated carbon.

Claim 12 (original): The process according to claim 6 further comprising the steps of:

- (k) adding hydrogen fluoride (HF) to said hexafluoropropene (HFP);
- (l) converting said hexafluoropropene (HFP) by hydrofluorination to heptafluoropropane (HFC-227) in the presence of a suitable catalyst to form a seventh mixture; and
- (m) separating said seventh mixture into said heptafluoropropane (HFC-227) and hydrofluorination byproducts.

Claim 13 (original): The process of claim 12 further including the step of:

- (n) recovering said heptafluoropropane (HFC-227).

Claim 14 (currently amended): A process for recovering pentafluoroethane (HFC-125)

comprising ~~the steps of~~:

- (o) providing a first mixture comprising pentafluoroethane (HFC-125) and chloropentafluoroethane (CFC-115);
- (p) distilling said first mixture in the presence of chlorotrifluoroethene (CFC-1113) to separate pentafluoroethane (HFC-125) from ~~an eighth~~ a second mixture comprising the chlorotrifluoroethene (CFC-1113) and the chloropentafluoroethane (CFC-115);
- (q) recovering said pentafluoroethane (HFC-125) as an overhead product; and
- (r) recovering said ~~eighth~~ second mixture as a bottom product.

Claim 15 (currently amended): The process according to claim 14 wherein said distilling ~~step~~ comprises extractive distillation.

Claim 16 (original): The process according to claim 14 wherein said chlorotrifluoroethene (CFC-1113) is an extracting agent.

Claim 17 (currently amended): The process according to claim 14 further ~~including the step of recycling~~ comprising providing said ~~eighth second~~ mixture to a process for manufacturing pentafluoroethane (HFC-125).

Claim 18 (currently amended): The process according to claim 14 further ~~including the steps of comprising:~~

(s) adding hydrogen fluoride (HF) to said ~~eighth second~~ mixture to produce a ~~ninth third~~ mixture; and

(t) converting a portion of said chlorotrifluoroethene (CFC-1113) in said ~~ninth third~~ mixture to at least one fluoroethane in the presence of a suitable catalyst to produce a ~~tenth fourth~~ mixture.

Claim 19 (original): The process according to claim 18 wherein said fluoroethane comprises 1-chloro-1,2,2,2-tetrafluoroethane (HCFC-124).

Claim 20 (currently amended): The process according to claim 18 further ~~including the step of comprising separating said at least one fluoroethane from said tenth fourth mixture into said at least one fluoroethane mixture and an eleventh to form a fifth~~ mixture comprising hydrofluorination byproducts.

Claim 21 (currently amended): The process according to claim 18 further including the step of recycling comprising providing said tenth fourth mixture to a process for recovering pentafluoroethane (HFC-125).

Claims 22-26 (cancelled).

Claim 27 (currently amended): ~~The process according to claim 22 wherein said olefinic extracting agent is~~ A process for producing halogenated hydrocarbons comprising: providing a near-azeotropic mixture having at least one halogenated hydrocarbon and at least one halocarbon; distilling said near-azeotropic mixture in the presence of hexafluoropropene (HFP) to separate said at least one halogenated hydrocarbon from a remaining mixture comprising said hexafluoropropene and said at least one halocarbon; and converting said hexafluoropropene in said remaining mixture to a derivative compound.

Claim 28 (original): The process according to claim 27 wherein said derivative compound is heptafluoropropane (HFC-227).

Claim 29 (currently amended): ~~The process according to claim 22 wherein said olefinic extracting agent is~~ A process for producing halogenated hydrocarbons comprising:
providing a near-azeotropic mixture having at least one halogenated hydrocarbon and at least one halocarbon;
distilling said near-azeotropic mixture in the presence of chlorotrifluoroethene (CFC-1113) to separate said at least one halogenated hydrocarbon from a remaining mixture comprising said chlorotrifluoroethene and said at least one halocarbon; and
converting said chlorotrifluoroethene in said remaining mixture to a derivative compound.

Claim 30 (original): The process according to claim 29 wherein said derivative compound is 1-chloro-1,2,2,2-tetrafluoroethane (HCFC-124).

Claim 31 (new): The process for producing halogenated hydrocarbons according to claim 27 further comprising the step of recovering said at least one halogenated hydrocarbon.

Claim 32 (new): The process according to claim 27 further including the step of purifying said derivative compound.

Claim 33 (new): The process according to claim 27 wherein said at least one halogenated hydrocarbon is pentafluoroethane (HFC-125).

Claim 34 (new): The process according to claim 27 wherein said near-azeotropic mixture comprises chloropentafluoroethane (CFC-115) and pentafluoroethane (HFC-125).

Claim 35 (new): The process for producing halogenated hydrocarbons according to claim 29 further comprising the step of recovering said at least one halogenated hydrocarbon.

Claim 36 (new): The process according to claim 29 further including the step of purifying said derivative compound.

Claim 37 (new): The process according to claim 29 wherein said at least one halogenated hydrocarbon is pentafluoroethane (HFC-125).

Claim 38 (new): The process according to claim 29 wherein said near-azeotropic mixture comprises chloropentafluoroethane (CFC-115) and pentafluoroethane (HFC-125).